Mr. Ervin

1.9
E-13/Mo

Monthly News Letter

Bureau of Agricultural Engineering

U. S. DEPARTMENT OF AGRICULTURE

For Bureau staff only. Not for publication.

Vol. 8 September 25, 1938 No. 1

Mr. McCrory sailed for Europe August 31 on SS President Harding. He plans to visit England and Ireland, France, Belgium, Holland, and possibly Germany and Italy. In Ireland and Belgium he plans to visit the retting plants in connection with studies the Bureau is undertaking in Oregon on the production of flax fiber. In England he will visit cotton spinning plants that are using American cotton to observe the condition of this cotton and particularly the amount of foreign matter in it as the bales are opened. He will also study the latest equipment for hay drying in use in England.

For some years specialists in England and Holland have been doing some very interesting work on the stabilization of sandy foreshores by the use of vegetation. Mr. McCrory will observe this work in order to determine if similar methods can be used in connection with the design by this Bureau for the Biological Survey of a number of migratory waterfowl refuges along the sea coast.

In Italy Mr. McCrory will visit the Pontine Marshes. He plans to return to the United States about the end of October.

* * *

ARMISTICE DAY

In accordance with the Act of Congress approved May 13, 1938, (Public No. 510 - 75th Congress) November 11 (Armistice Day) is made a legal public holiday to all intents and purposes and in the same manner as January 1, February 22, May 30, July 4, the first Monday of September, and Christmas Day are now made by law public holidays.

* * *

A recent occurrence has emphasized the advisability of all employees making arrangements whereby their salary and other Government checks may be cashed or deposited in banks when it is impossible for the employee to endorse the paper. This may be done by giving power of attorney to some member of the family or to the bank. Forms for such power of attorney, if desired, can be furnished by the Bureau.

* * *

The Bureau of Reclamation, Department of the Interior, has issued a "Concrete Manual" which is an excellent source of information on concrete. Copies may be obtained from the Denver, Colorado, office of the Bureau of Reclamation at $1.00 each.

* * *

Leslie Bowen, Assistant Irrigation Engineer, who for the past six years had been engaged in duty-of-water experiments at Scottsbluff, Nebr., died on August 26.

Mr. Bowen received the degree of B.S. from Utah Agricultural College in 1920, and his master's degree from the same institution in 1924. For five years he taught mathematics and during eight summer seasons he conducted hydrographic studies. In 1922 he was city engineer of Spanish Fork, Utah. In 1928 he was appointed hydrographer and instrument man with the Biological Survey and in 1929 assistant irrigation engineer in the same Bureau. He was engaged on drainage investigations on Kootenai River, Idaho, in 1931-32 and in 1932 took up the work at Scottsbluff, Nebr.

Mr. Bowen was highly esteemed by his associates for his fine qualities and his achievements in research.

* * *

The first public demonstration of the "availabilimeter", designed by R. B. Allyn for determining the amount of moisture in soil available for plant use, was given August 26 at a field day held at Medford, Oregon, under the auspices of the Oregon Agricultural Experiment Station and the Fruit Growers' League. Field calibrations are being made on approximately 25 irrigation plots to verify previous laboratory calibrations made with this instrument. Moisture determinations made by the availabilimeter and duplicated by the oven method have shown remarkable agreement. It is expected that with corrections now in progress, deviation in results indicated by the two methods will be reduced to 2 percent. By means of the availabilimeter, moisture samples at five locations at each of the three foot levels, 15 samples in all for an entire plot, can be taken and the moisture determinations made all within 30 minutes, whereas the oven method, with the necessary calculations for this number of samples, usually requires three days.

\- - -

M. R. Lewis made preliminary plans for a study of soil erosion under irrigation, to be carried on in cooperation with the Soil Conservation Service. On an inspection trip in Oregon, some very bad examples of erosion were found as well as examples of very well prepared fields where the loss of soil is being held at a minimum.

\- - -

In the San Fernando Valley, Calif., there are about 12,000 acres of citrus crops. Approximately 70,000 acres have been planted to various crops but much of this land has been subdivided for residential areas. About 25,000 acres of new land are available for cultivation. In connection with the survey of agricultural conditions to be undertaken in this valley conferences were held by Messrs. A. T. Mitchelson, Paul A. Ewing, Harry F.

Blaney, Colin A. Taylor, and Dean W. Bloodgood, with officials of the Los Angeles County Farm Bureau, at which it was decided that Mr. Ewing, in cooperation with members of the staff of the University of California, would undertake the first part of the survey, a report on which would be completed within four months. Part II will consist of research studies on water utilization, in cooperation with the Bureau of Water Works and Supply of the City of Los Angeles, to which Messrs. Taylor and Bloodgood will be assigned. Both studies are to be coordinated under the general supervision of Mr. Blaney. The latter study is expected to extend over a period of at least five years.

- - -

In connection with the study of irrigation possibilities in South Dakota, Dean C. Muckel conferred with many county officials, farmers and others concerning prospects for irrigation projects. He also gave advice concerning location of wells, installation and testing of pumps, preparation of land for irrigation, etc. A number of wells are being drilled under the direction of the Works Progress Administration.

- - -

Under the Snow Survey and Irrigation Water Supply Forecasting project, J. C. Marr made a 3,000 mile trip covering snow courses in northern Nevada, southeastern Idaho, western Wyoming and western Montana. Three new snow courses were added to the present network. The Weather Bureau experimental set-up for measuring snow at Mammoth, Yellowstone National Park, was inspected. Tentative plans were made for cooperation with the State Engineer of Montana and the Montana Agricultural Experiment Station. Mr. Marr found that the snow survey work of the Bureau in all of the regions visited is looked upon as work of great value and is being enthusiastically supported. A manual is being prepared for snow surveyors. L. T. Jessup made extensive trips in Washington, Idaho and Montana, inspecting snow courses, consulting with supervisors and rangers, and surveying and relocating courses. R. A. Work made an extensive trip in Oregon for the purpose of making short-wave radio installations, locating and marking snow courses and completing final arrangements for snow survey shelter cabins.

- - -

Colin A. Taylor reports that the machine designed by him for laying out broad, flat irrigation furrows has been fitted with folding wings so that 2, 3, or 4 furrows can be made as desired, since most orchards have some odd corners in which 4 furrows can not be made. With the folding wings, the machine is flexible enough to work under any practical orchard conditions. The machine was used on 20 acres at Glendora, Calif., on which weeds had been allowed to grow in the previous flat furrows until mature. The orchard was then disked lightly and the new furrows made so that they split the old ridges and covered the weeds in the bottoms of the old furrows. This alternation of the position of ridges and furrows is of advantage in control of salts, as well as soil moisture. On the Rancho Sespe in Ventura County, Calif., 700 acres are now under broad-furrow irrigation, and great saving in labor cost has been effected thereby.

- - -

Harry G. Nickle assisted the Texas Board of Water Engineers in assembling data concerning silt deposits in the Buchanan Reservoir, to be presented to the State Senate Investigating Committee which is attempting to determine causes of failure of that reservoir to control the floods which recently caused great damage in areas below the dam. Information has been requested from the Board not only as to the actual facts pertaining to the recent flood, but also what would have been the effect below had the gates been opened earlier, had the reservoir been only half full, had the reservoir been empty, etc.

* * *

A new project on corn storage investigations financed by allotment from the Bankhead-Jones special research fund has been established with headquarters at Ames, Iowa. Dr. H. J. Barre is in charge of this project, his salary being paid jointly by the Iowa Experiment Station and the Bureau. The new investigations will deal primarily with the corn storage situation as it exists on farms. Surveys in cooperation with the respective State Experiment Stations and the State and County Agricultural Conservation Committees are now being made in selected counties in -- Minnesota, Indiana, and Iowa. In addition to Dr. Barre, Messrs. David Atkins and Silas M. Henderson have been added to the staff. Mr. Atkins is a licensed grain inspector and will determine grade of corn samples taken from cribs surveyed. Mr. Henderson is a graduate of Simpson College and has had one year of Agricultural Engineering at Ames. This new field study of corn storage conditions is in addition to the experimental work begun last year at Ames and Urbana. Dr. Barre will work with Thayer Cleaver and W. R. Swanson thus coordinating the work under the three projects.

\- - -

A study of potato storage in the Red River Valley in cooperation with the North Dakota Agricultural Experiment Station is being undertaken. M. G. Cropsey will represent the Bureau in this work. A. D. Edgar visited a number of the houses in August with Mr. Cropsey, Professor McColly and other representatives of the North Dakota Experiment Station and is advising on the conduct of the investigation.

\- - -

J. R. McCalmont cooperated with Mr. Tucker and Mr. Besley of the New Jersey Experiment Station in obtaining pressure measurements in a 12 x 42 foot silo filled with hay and molasses silage at Beemersville, New Jersey. The following week he obtained pressure readings on a large silo filled with corn silage at the Beltsville Research Center, Maryland. Mr. McCalmont reported the results of silage pressures during the past three years in a paper presented at the North Atlantic meeting of the A.S.A.E. at Boston.

\- - -

W. V. Hukill delivered a paper on "Wall Construction for Air Conditioned Houses and for Refrigerated Storages", at the Boston meeting.

\- - -

Mr. Hukill visited the farm housing project at Athens, Georgia, A series of hot weather studies to find the effects of solar radiation, ceiling height, position of window and door openings, use of insulation, color of paint, and other factors on temperature conditions within the house have been completed and Messrs. J. W. Simons and F. B. Lanham plan to write a complete report of the work done before undertaking further investigations. The recently completed studies extend into fields that have not previously been investigated and the report will make available new data that will have both scientific and practical interest to designers of many types of buildings.

- - -

J. R. Dodge will be at Madison, Wisconsin, for the next few weeks to work with M. J. La Rock and Oscar Shivers in preparing publications covering the farmhouse remodeling studies which are nearing completion.

- - -

In a recent test at Arlington Farm, Virginia, of the continuous type portable wheat drier built by C. F. Kelley, wheat was dried at the rate of 85 bushels an hour, the average moisture content being reduced from 14.35 to 12.4 percent. While this is considered a good performance modifications are being made to further increase the efficiency if possible.

* * *

On September 7 Lewis A. Jones visited Vicksburg, Mississippi, to attend a conference with state authorities and Army engineers relative to the proposed survey of drainage conditions in the Yazoo Delta of Mississippi. The State Legislature of Mississippi recently appropriated $20,000 for such an investigation and the WPA has allocated $70,000 for the same purpose. The Mississippi State Planning Commission has requested the Bureau of Agricultural Engineering to supervise the work. J. T. Olsen, Associate Drainage Engineer, has been assigned to have immediate charge of the work and left Washington September 17 for Greenwood, Mississippi, where he will establish his headquarters and start the organization of the necessary force.

- - -

F. E. Staebner has been working on the design of a large concrete reservoir for the Department horticulture farm at Beltsville, Maryland. The reservoir is for the storage of water for irrigation and fire fighting purposes.

- - -

Jesse R. Cowand has been transferred to work for the Bureau of Biological Survey at Mattamuskeet and Pea Island, North Carolina and Buck Bay, Virginia.

- - -

The Central District drainage camps during the month of August, 1938, completed 4,593,069 square yards of clearing. 1,395,473 cubic yards of excavation and embankment 47,024 lineal feet of tile reconditioning, and structural and other work, with the use of 97,104 enrollee man-days on the work; 21,092 enrollee man-days of the total number were used on structures and other miscellaneous work.

* * *

Early in September R. B. Gray visited the cotton production project at Auburn, Alabama, and conferred with R. M. Merrill and his associates concerning the work on tillage machinery. Plans were also discussed with E. D. Gordon relative to a trip to be made in October in Louisiana to study the needs of mechanization in sugar cane growing and to make a survey of what machinery development has already been attempted or is under way.

- - -

Mr. Gray also visited the T.V.A. projects and discussed with C. J. Hurd, Acting Chief of the Machinery Division, and others, the machinery developments under way, contemplated and needed. Several interesting machinery developments were also viewed, including a hay drier using unheated air, a small thresher, a seeder for sowing small grass and fertilizer which sows the seed in a wide band and aids in preventing soil erosion.

- - -

In connection with the history on the development of the agricultural tractor, being compiled by R. B. Gray and W. R. Humphries, official tractor tests conducted at Lincoln, Nebraska reveal that since the beginning of mass production of the general purpose type (1926) efficiencies, in terms of drawbar horsepower hours per gallon of fuel, have been stepped up around 50 percent. Use of rubber tires on tractors has, for the past 2 years, played an important role in this accomplishment. In certain individual tests tractors mounted on rubber have developed their rated horsepower while traveling in excess of 5 miles per hour. At the same time the weighting of the drive wheels of these tractors, which is necessary to provide adequate traction, has resulted in an increase in the dead weight of the machine of as much as 200 pounds per belt horsepower developed.

- - -

G. A. Cumings attended the A.S.A.E. Northeastern Section meeting in Boston, September 20-22, and presented a paper entitled "Putting Fertilizer Where it Belongs".

- - -

W. H. Redit supervised the planting operations in fertilizer placement experiments with spinach at Norfolk, Va., on Sept. 9.

- - -

Stanley Madill of the experimental department, John Deere Plow Works, spent August 25 to 29 at the Farm Tillage Machinery Laboratory observing tests comparing a new experimental plow bottom with one of their regular bottoms. These bottoms were used in three soil types and at speeds varying from 1 to 7 miles per hour.

- - -

E. M. Mervine spent two weeks in California with S.W. McBirney where preliminary tests were made with the Great Western Sugar Company and Scott Viner Co. sugar beet harvesters. The former which tops the beets in the ground and subsequently lifts them, did a fair job of topping, but the digger or lifter unit delivered so many clods with the beets that hand loading was necessary to separate the clods from the beets. The work of the Scott Viner harvester was much the same as last year. However, several changes to improve its work seem necessary and are now being made.